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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,393	12/18/2001	Karl F. Kovacs	16U 103 R1	6508

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EXAMINER	
MURPHY, JOSEPH F	

ART UNIT	PAPER NUMBER
1646	

DATE MAILED: 07/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/017,393	KOVACS ET AL.	
	Examiner	Art Unit	
	Joseph F Murphy	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,13-16,18 and 19* is/are pending in the application.

4a) Of the above claim(s) *6-12, 17* is/are withdrawn from consideration.

5)☒ Claim(s) *1 and 18* is/are allowed.

6)☒ Claim(s) *2-5, 13-16, 19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Formal Matters

Claims 1-19 are pending. Claims 1-5, 13-16, 18-19 are under consideration. Claims 6-12, 17 are withdrawn from consideration pursuant to 37 CFR 1.142(b).

Response to Amendment and Arguments

Applicant's arguments filed 05/6/2004 have been fully considered but they are persuasive in part, for the reasons set forth below.

The rejections of claim 1 under 35 USC § 112 first paragraph have been obviated by Applicant's amendment and are thus withdrawn.

The rejection of claim 4 under 35 USC § 112 second paragraph has been obviated by Applicant's amendment and is thus withdrawn.

The rejection of claims 1-5, 13-16 under 35 USC § 102(b) has been obviated by Applicant's amendment and is thus withdrawn.

New and remaining issues are set forth below.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 13-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims as written read on mammalian cells transformed with a nucleic acid. As there is not limitation wherein these cells are isolated, and the claims encompass transfected cells within a human, they read on a transgenic human, which is not patentable subject matter.

Claim Rejections - 35 USC § 112 first paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 2-5, 13-16, stand rejected, and new claim 19 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an isolated human H2R polynucleotide comprising polynucleotide sequence having 95% or more sequence identity along the entire length of the polynucleotide sequence set forth in SEQ ID NO: 1 and which codes without interruption for H2R, or a complete complement thereto, wherein said polynucleotide hybridizes under high stringency conditions comprising 5X SSC. 0.5% SDS. 100 ug/ml denatured salmon sperm DNA and 50% formamide at 42C to the complete complement of the sequence set forth in SEQ ID NO: 1 and wherein said polynucleotides codes for a polypeptide that binds histamine, and also for an isolated H2R polynucleotide, comprising: a polynucleotide coding for amino acids 360-422 of SEQ ID NO 2, specific fragments thereof which hybridize specifically under high stringent conditions to the polynucleotide sequence from nucleotide positions 1 180-1368 as set forth in SEO ID NO:1, or complete complements thereto, wherein said H2R polynucleotide encodes a polypeptide which binds histamine, does not reasonably provide enablement for an isolated human H2R polynucleotide comprising polynucleotide sequence having 95% or more sequence identity along the entire length of the polynucleotide sequence set forth in SEQ ID NO: 1 and which codes without interruption for H2R, or a complete complement thereto, wherein said polynucleotide hybridizes under high stringency conditions comprising 5X SSC. 0.5% SDS. 100 ug/ml denatured salmon sperm DNA and 50%

formamide at 42C to the complete complement of the sequence set forth in SEQ ID NO: 1 and wherein said polynucleotides codes for a polypeptide that has H2 receptor activity, or for an isolated H2R polynucleotide, comprising: a polynucleotide coding for amino acids 360-422 of SEQ ID NO 2, specific fragments thereof which hybridize specifically under high stringent conditions to the polynucleotide sequence from nucleotide positions 1 180-1368 as set forth in SEO ID NO:1, or complete complements thereto, for reasons of record set forth in the Office Action of 02/23/2004. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The rejection of record set forth that the claims are drawn to polynucleotides that have varying sequences, either because they are 95% identical, are fragments or are complementary to sequences without being fully complementary. Thus, the claims are overly broad since insufficient guidance is provided as to which of the myriad of variant polynucleotides encompassed will encode polypeptides which will retain the characteristics of human H2R. While Applicant has amended the claims to recite that the encompassed polypeptides have H2 receptor activity. The Specification states that biological activity of the receptor includes any function of the receptor protein, and that Examples of these activities include, but are not limited to, G-proteins and kinases, such as GRKs, upon activation by an extracellular ligand, stimulation or activation of H2R has many different effects, including, but not limited to, cAMP production, phospholipid methylation, changes in calcium conductance, mobilization of intra-cellular calcium pools, calcium release, inhibition of phospholipase A, receptor protein phosphorylation, etc (Specification at 33). However, the term "H2R receptor activity" is not clear as set forth in

the rejection under 35 USC 112 second paragraph, infra. Thus the skilled artisan would not be apprised of the metes and bounds of the functional limitation with regard to encoded polypeptide activity. However, Applicant is required to enable one of skill in the art to make and use the claimed invention, while the claims encompass variant polynucleotides encoding polypeptides that the specification only teaches one skilled in the art to test for functional variants. It would require undue experimentation for one of skill in the art to make and use the claimed polypeptides, since the skilled artisan would have to first make variant polynucleotides encoding polypeptides of SEQ ID NO: 2, then determine a function, then test for that function. Because the amino acid sequence of a polypeptide determines its structural and functional properties, and predictability of which amino acids can be substituted is extremely complex, accurate predictions of a polypeptide's structure from mere sequence data are limited. Thus, since Applicant has only taught how to test for variant polynucleotides encoding polypeptides of SEQ ID NO: 2, and has not taught how to make variant polynucleotides encoding polypeptides of SEQ ID NO: 2, it would require undue experimentation of one of skill in the art to make and use the claimed polynucleotides.

Claims 2-5, 13-16, stand rejected, and new claim 19 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a

way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention, for reasons of record set forth in the Office Action of 02/23/2004. Applicant is directed to the Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

The rejection of record set forth that these are genus claims because the claims are drawn to polynucleotides that have varying sequences, either because they are 95% identical, are fragments or are complementary to sequences without being fully complementary. While Applicant has amended the claims to recite that the encompassed polypeptides have H2 receptor activity. The Specification states that biological activity of the receptor includes any function of the receptor protein, and that Examples of these activities include, but are not limited to, G-proteins and kinases, such as GRKs, upon activation by an extracellular ligand, stimulation or activation of H2R has many different effects, including, but not limited to, cAMP production, phospholipid methylation, changes in calcium conductance, mobilization of intra-cellular calcium pools, calcium release, inhibition of phospholipase A, receptor protein phosphorylation, etc (Specification at 33). However, the term "H2R receptor activity" is not clear as set forth in the rejection under 35 USC 112 second paragraph, infra. The written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant identifying characteristics, i.e. structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between structure and function structure, or by a combination of such identifying characteristics, sufficient to show the

applicant was in possession of the claimed genus. In the instant case, the specification fails to provide a correlation between structure and function, since no clear function is set forth for the claimed polypeptides. Thus, no identifying characteristics or properties of the instant polynucleotides encoding polypeptides are provided such that one of skill would be able to predictably identify the molecules that would retain "biological activity" of variants of the variant polynucleotides encoding H2R polypeptides .

Claim Rejections - 35 USC § 112 second paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-5, 13-16, 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2-5, 13-16, 19 are vague and indefinite in the recitation of the term "biologically active". The term "biologically active" is not defined by the claim, and give no definition of what this activity is. Various biological activities can be attributed to a peptide. For example, "activity" could constitute transportation throughout a cell, alteration of tertiary structure due to changes in pH, ligand binding, or modulation of second messenger effect, etc. 'Activity' could also be referring to the ability of the fragment to stimulate antibody production.

The Specification states that biological activity of the receptor includes any function of the receptor protein, and that Examples of these activities include, but are not limited to, G-proteins and kinases, such as GRKs, upon activation by an extracellular ligand, stimulation or activation of H2R has many different effects, including, but not limited to, cAMP production, phospholipid methylation, changes in calcium conductance, mobilization of intra-cellular calcium pools, calcium release, inhibition of phospholipase A, receptor protein phosphorylation, etc (Specification at 33). In reviewing a claim for compliance with 35 U.S.C. 112, second paragraph, the examiner must consider the claim as a whole to determine whether the claim apprises one of ordinary skill in the art of its scope and, therefore, serves the notice function required by 35 U.S.C. 112, second paragraph "by providing clear warning to others as to what constitutes infringement of the patent". MPEP 2173.02, MPEP 2173.02. In the instant case, the myriad of effects set forth as biological activities of the claimed polypeptide would not indicate to the skilled artisan of the metes and bounds of the claims.

Conclusion

Claims 1 and 18 are allowable.

Claims 2-5, 13-16, 19 are rejected.

Advisory Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Murphy whose telephone number is (571) 272-0877. The examiner can normally be reached Monday through Friday from 7:30 am to 5:00 pm. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda Brumback can be reached on (571) 272-0961.

The fax number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joseph F. Murphy, Ph. D.
Patent Examiner
Art Unit 1646
July 13, 2004